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W. B. No. 228. Tables of daily precipitation for 1893–1895, inclusive. (Completed only to "P.") Weather Bureau. 8vo. 256 pp. 1900.

W. B. No 231. Report of the Chief of the Weather Bureau. 1900. 8vo. 15 pp.

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W. B. No. 235. Psychrometric tables. C. F. Marvin. 8vo. 84 pp. 1900.

W. B. No. 237. Meteorological chart of the Great Lakes for season of 1900. A. J. Henry and N. B. Conger. 4to. 23 pp. 1901.

W. B. No. 241. Barometers and measurement of atmospheric pressure. Circular F, Instrument Division. C. F. Marvin. 8vo. 94 pp. 1901.

WIND AND TEMPERATURE.

A correspondent has proposed the following question:

Given, a close fence 12 or 14 feet high running from the northeast to the southwest, or directly athwart a blizzard from the northwest, a thermometer being on each side of the fence about 5 feet from the ground. If the thermometer on the north side indicates 15° above zero what will the instrument on the lee side show?

I know from practical experience the great and appreciable difference in the two sides to animal life but have no knowledge of the effect these two positions of the thermometer have upon the mercury. Will you kindly tell me? If, as some claim, there is very little, then why should a man exposed on the north side freeze to death, while on the south side he would survive without much injury? In one case the cold cuts to the marrow, in the other by buttoning up one's coat only a chilly sensation is experienced. Is not vegetable life in this particular affected much the same as animal life, or in other words would not a tender tree on each side of this high fence fare much the same as two men, one on each side of it?

There is no appreciable difference between the temperature of the air on the windward and leeward sides of a fence, or of any other form of windbreak. Animals seek shelter from the wind for the reason that it conveys away the heat of their bodies much faster than does the quiet air, since the covering provided for their protection by nature is not impervious to strong winds. For the same reason, a man will perish in a high wind with a temperature that would cause him little discomfort in a calm, since in the presence of a strong wind his clothing is incapable of retaining his bodily heat.

The lowest temperatures and those that produce frosts and destruction to vegetation usually occur after the wind has died down, and are due to excessive radiation of heat from the ground and from the plants into space. Under these conditions the plants are sometimes colder than the air itself, so that a fence could be of no possible use to the plants; in fact it is well known that under these circumstances a wind brings warm air to prevent frost.

When a cold wave is coming on, the plants are, of course, cooled by the cold air that is continually passing by them, and if this cold air can be held back and the warm air retained the plants will be protected; but a fence on the windward side of the field would hardly effect this, since cold air has a tendency to descend to the ground and warm air to rise. A covering of some sort is therefore the only means of retaining the desired heat, and the same covering will also prevent the lowering of the temperature by radiation.

It is for these reasons that the Weather Bureau in its publications has always advocated screens, smudges, etc., as a protection against frost.

REDUCTION TO STANDARD GRAVITY AT MEXICAN STATIONS.

In order to correct the barometer for the variations in gravity we have to consider the fact that not only does the force of gravity, combined with the centrifugal force due to the diurnal rotation of the earth, vary with the latitude of the station, but there is also a small variation depending on the altitude of the station above sea level and the mass of the mountain or plateau on which the station rests. Some account of this problem has been given in the MONTHLY WEATHER REVIEW for December, 1896, p. 463, July, 1898, p. 314, and December, 1898, p. 550, at least in so far as concerns the United States. In Mexico the problem of the reduction to standard gravity is one of special importance, since great differences of altitude occur at stations very close together. As all Mexican stations, so far as they are mentioned in the accompanying table, use mercurial barometers, the corrections have therefore been computed by Señor Pastrana according